

WHAT IS CLAIMED IS:

1. A vehicle allocation processing apparatus which executes a vehicle allocation processing of allocating vehicles to customers in accordance with requests from the customers, comprising:
 - 5 a driving status information acquiring section which acquires driving status information concerning driving states of the vehicles, from vehicle communication terminals mounted on the vehicles and capable of transmitting/receiving information;
 - 10 a vehicle information storage which stores the driving status information acquired by the driving status information acquiring section, with the driving status information linked to vehicle information concerning the vehicles;
 - 15 a vehicle allocation request information acquiring section which acquires vehicle allocation request information concerning a vehicle requested by a customer and including customer delivery position information concerning a delivery position to which the customer requests delivery, and customer destination information concerning a destination at which the customer aims;
 - 20 an allocable vehicle searching section which searches for allocable vehicles, based on the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, and the vehicle information and driving status information stored in the vehicle information storage; and
- 25 2. The apparatus according to claim 1, further comprising a setting input recognizer which recognizes an input manipulation made by the customer, wherein the vehicle allocation processor processes the vehicle information stored in the vehicle information storage and corresponding to the allocable vehicles, to make the vehicle information reportable to the customer, to suggest the customer to select a particular one of the

allocable vehicles, recognizes the selection of the particular vehicle by recognizing an input manipulation made by the customer via the setting input recognizer, and transmits, as the information suggesting allocation, the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, to the vehicle communication terminal mounted on the particular vehicle, based on the vehicle information corresponding to the particular vehicle.

3. A vehicle allocation processing apparatus which executes a vehicle allocation processing of allocating vehicles to customers in accordance with requests from the customers, comprising:

10 a driving status information acquiring section which acquires driving status information concerning driving states of the vehicles, from vehicle communication terminals mounted on the vehicles and capable of transmitting/receiving information;

15 a vehicle information storage which stores the driving status information acquired by the driving status information acquiring section, with the driving status information linked to vehicle information concerning the vehicles;

20 a setting input recognizer which recognizes input manipulations made by the customers;

25 a vehicle allocation request information acquiring section which acquires vehicle allocation request information concerning a vehicle requested by a customer and including customer delivery position information concerning a delivery position to which the customer requests delivery, by recognizing an input manipulation made by the customer, via the setting input recognizer;

an allocable vehicle searching section which searches for allocable vehicles, based on the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, and the vehicle information and driving status information stored in the vehicle information storage; and

30 a vehicle allocation processor which processes at least one of delivery time information concerning delivery time required for delivering each of the allocable vehicles and calculated on the basis of the driving status information stored in the vehicle information

storage and corresponding to the allocable vehicles and the customer delivery position information included in the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, and the vehicle information stored in the vehicle information storage and corresponding to each of the allocable vehicles, to make at 5 least one of the delivery time information and the vehicle information reportable to the customer, to suggest the customer to select a particular vehicle, recognizes the selection of the particular vehicle by recognizing an input manipulation made by the customer, via the setting input recognizer, and transmits, as information suggesting allocation, the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, to 10 the vehicle communication terminal mounted on the particular vehicle, based on the vehicle information corresponding to the particular vehicle.

4. The apparatus according to claim 1 or 3, wherein

the driving status information is configured to include vehicle current position information concerning a current position of each of the vehicles, operating status information 15 indicative of a vacant state and a charged driving state of each of the vehicles, and charged driving destination information concerning a destination in case of the charged driving state, and

the allocable vehicle searching section determines the vacant state or the charged driving state from the operating status information included in the driving status information, 20 calculates the delivery time based on the vehicle current position information included in the driving status information and the customer delivery position information included in the vehicle allocation request information if the vacant state is determined, or calculates the delivery time based on the vehicle current position information and the charged driving destination information and customer delivery position information included in the driving 25 status information if the charged driving state is determined, and searches for, as the allocable vehicles, vehicles each having the calculated delivery time equal to or shorter than a predetermined threshold value.

5. The apparatus according to claim 1 or 3, wherein if the allocable vehicle searching section recognizes that there is no applicable vehicle as a result of searching for the

allocable vehicles, the allocable vehicle searching section processes search result information indicative of no applicable vehicle, to be reportable to the customer.

6. The apparatus according to claim 1 or 3, further comprising:

- a discount information calculation section which calculates discount information
- 5 concerning a discount rate to a charge for use of each of the allocable vehicles, based on at least one of the vehicle information and the driving status information stored in the vehicle information storage, and also based on the vehicle allocation request information acquired by the vehicle allocation request information acquiring section; and
- a storage which stores the discount information calculated by the discount information
- 10 calculation section, with the discount information kept transmittable to the vehicle communication terminals mounted on the allocable vehicles or to a payment processor which executes a payment processing for charges for the vehicles.

7. A vehicle allocation processing apparatus which executes a vehicle allocation processing of allocating vehicles to customers in accordance with requests from the

15 customers, comprising:

- a driving status information acquiring section which acquires driving status information concerning driving states of the vehicles, from vehicle communication terminals mounted on the vehicles and capable of transmitting/receiving information;

- 20 a vehicle information storage which stores the driving status information acquired by the driving status information acquiring section, with the driving status information linked to vehicle information concerning the vehicle;

- 25 a vehicle allocation request information acquiring section which acquires vehicle allocation request information concerning a vehicle requested by a customer and including customer delivery position information concerning a delivery position to which the customer requests delivery;

- a vehicle allocation processor which transmits, as information suggesting allocation, the vehicle allocation request information acquired by the vehicle allocation request information acquiring section to the vehicle communication terminals mounted on allocable vehicles, based on the vehicle information stored in the vehicle information storage;

a discount information calculation section which calculates discount information concerning a discount rate to a charge for use of each of the allocable vehicles, based on at least one of the vehicle information and the driving status information stored in the vehicle information storage, and also based on the vehicle allocation request information acquired by the vehicle allocation request information acquiring section; and

5 a storage which stores the discount information calculated by the discount information calculation section, with the discount information kept transmittable to the vehicle communication terminals mounted on the allocable vehicles or to a payment processor which executes a payment processing for charges for the vehicles.

10 8. The apparatus according to claim 7, further comprising:

an allocable vehicle searching section which searches for the allocable vehicles, based on the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, and the vehicle information and driving status information stored in the vehicle information storage.

15 9. The apparatus according to claim 6 or 7, wherein the discount information calculation section calculates delivery time required for delivering each of the allocable vehicles, based on the customer delivery position information included in the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, and the driving status information stored in the vehicle information storage, and calculates the 20 discount information concerning the discount rate to the charge for each of the allocable vehicles.

10. The apparatus according to claim 9, wherein

the vehicle allocation request information is configured to include customer request delivery time information concerning delivery time requested by the customer, and

25 the discount information calculation section compares the delivery time required for delivering each of the allocable vehicles, with the delivery time based on the customer request delivery time information included in the vehicle allocation request information, to calculate the discount information concerning the discount rate to the charge for each of the allocable vehicles.

11. The apparatus according to claim 9, wherein
the driving status information is configured to include vehicle current position
information concerning a current position of each of the vehicles, operating status information
indicative of a vacant state and a charged driving state of each of the vehicles, and charged
5 driving destination information concerning a destination in case of the charged driving state,
and

the discount information calculation section determines the vacant state or the charged
driving state from the operating status information included in the driving status information
when calculating the delivery time required for delivering each of the allocable vehicles, and
10 calculates the delivery time on the basis of the vehicle current position information included in
the driving status information and the customer delivery position information included in the
vehicle allocation request information, if the vacant state is determined, or calculates the
delivery time on the basis of the vehicle current position information, the charged driving
destination information included in the driving status information, and the customer delivery
15 position information, if the charged driving state is determined.

12. The apparatus according to claim 6 or 7, wherein the discount information
calculation section calculates a delivery distance to drive when delivering each of the allocable
vehicles, based on the customer delivery position information included in the vehicle allocation
request information acquired by the vehicle allocation request information acquiring section,
20 and the driving status information stored in the vehicle information storage, and calculates the
discount information concerning the discount rate to the charge for each of the allocable
vehicles, based on the delivery distance.

13. The apparatus according to claim 12, wherein
the vehicle information is configured to include vehicle waiting position information
25 concerning a waiting position of each of the allocable vehicles, and
the discount information calculation section calculates a vacant driving distance of
each of the allocable vehicles, based on the vehicle waiting position information and the driving
status information stored in the vehicle information storage, and compares the vacant driving
distance of each of the allocable vehicles, with the delivery distance to drive when delivering

each of the allocable vehicles, to calculate the discount information concerning the discount rate to the charge for each of the allocable vehicles.

14. The apparatus according to claim 6 or 7, wherein
the vehicle information is configured to include vehicle service information
5 concerning contents of services held by the vehicles,

the vehicle allocation request information is configured to include customer request service information concerning contents of services with respect to the vehicle requested by the customer, and

the discount information calculation section compares the customer request service
10 information included in the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, with the vehicle service information included in the vehicle information stored in the vehicle information storage, to calculate the discount information concerning the discount rate to the charge for each of the allocable vehicles.

15. The apparatus according to claim 6 or 7, further comprising a setting input
15 recognizer which recognizes an input manipulation made by the customer, wherein

the vehicle allocation processor processes listed information including the discount information stored in the storage, to make the listed information reportable to the customer, to suggest the customer to select a particular vehicle, recognizes the selection of the particular vehicle by recognizing an input manipulation made by the customer, via the setting input
20 recognizer, and transmits, as information suggesting allocation, the vehicle allocation request information acquired by the vehicle allocation request information acquiring section to the vehicle communication terminal mounted on the particular vehicle, based on the vehicle information corresponding to the particular vehicle.

16. The apparatus according to any of claims 1, 3 and 7, wherein the vehicle
25 allocation request information acquiring section acquires the vehicle allocation request information from a communication terminal operated by the customer and capable of transmitting/receiving information.

17. The apparatus according to claim 16, wherein
the communication terminal has customer identification information to identify the

customer,

the vehicle allocation request information acquiring section acquires the vehicle allocation request information including the customer identification information from the communication terminal,

5 the vehicle allocation processor transmits, as the information suggesting allocation, the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, to the vehicle communication terminal mounted on the particular vehicle, and

the apparatus further comprises:

10 a customer information storage which stores the customer specific information including the customer identification information and specifying the customer;

an authentication section which compares the customer identification information included in the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, with the customer specific information stored in the customer 15 information storage, to authenticate the customer identification information;

a use complete information acquiring section which acquires use complete information linked to charge information concerning the charge for the particular vehicle, and the customer identification information included in the vehicle allocation request information, from the vehicle communication terminal of the particular vehicle, after the customer 20 identification information is authenticated by the authentication section and the vehicle allocation request information is transmitted to the vehicle communication terminal of the particular vehicle from the vehicle allocation processor; and

25 a payment processor which executes a payment processing, based on the customer specific information stored in the customer information storage and corresponding to the customer identification information in the use complete information acquired by the use complete information acquiring section, and the charge information in the use complete information.

18. The apparatus according to claim 6 or 7, wherein

the discount information is point information concerning points given to each

customer who uses allocation of any vehicle,

the vehicle allocation request information acquiring section acquires the vehicle allocation request information from the communication terminal which has customer identification information to identify the customer, is operated by the customer, and is capable of transmitting/receiving information,

the vehicle allocation processor transmits, as the information suggesting allocation, the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, to the vehicle communication terminals mounted on the allocable vehicles,

10 the storage stores the discount information calculated by the discount information calculation section, and the customer identification information included in the vehicle allocation request information used when calculating the discount information, and

the apparatus further comprises:

15 a customer information storage which stores customer specific information including the customer identification information and specifying the customer;

an authentication section which compares the customer identification information included in the vehicle allocation request information acquired by the vehicle allocation request information acquiring section, with the customer specific information stored in the customer information storage, to authenticate the customer identification information;

20 a use complete information acquiring section which acquires use complete information linked to charge information concerning the charge for the particular vehicle, and the customer identification information included in the vehicle allocation request information, from the vehicle communication terminal of the particular vehicle, after the customer identification information is authenticated by the authentication section and the vehicle allocation request information is transmitted to the vehicle communication terminal of the particular vehicle from the vehicle allocation processor; and

25 a payment processor which executes a payment processing, based on the customer specific information stored in the customer information storage and corresponding to the customer identification information in the use complete information acquired by the use

complete information acquiring section, and also based on the charge information in the use complete information, and makes the customer information storage store the discount information stored in the storage and corresponding to the customer identification information in the use complete information, together with the customer specific information, after 5 executing the payment processing.

19. The apparatus according to any of claims 1, 3 and 7, wherein
 - the vehicle allocation request information is configured to include customer delivery position information concerning a delivery position to which the customer requests delivery or customer destination information concerning a destination at which the customer aims,
 - 10 the apparatus further comprises a setting input recognizer which recognizes an input manipulation made by the customer, and a map information storage which stores map information,
 - the setting input recognizer processes the map information stored in the map information storage, to make the map information displayable and to suggest the customer to 15 make an input manipulation and recognizes the instruction of the predetermined position on the map information as the input manipulation made by the customer, and
 - the vehicle allocation request information acquiring section acquires the instruction position recognized by the setting input recognizer, as the customer delivery position information or the customer destination information.
 20. A vehicle allocation processing system which executes a vehicle allocation processing of allocating vehicles to customers in accordance with requests from the customers, comprising:
 - the vehicle allocation processing apparatus according to any of claims 1, 3 and 7;
 - a vehicle communication terminal mounted on each of the vehicles and capable of 25 transmitting/receiving information; and
 - a communication section enabling transmission/reception of information between the vehicle allocation processor and the vehicle communication terminal of each of the vehicles.
 21. A vehicle allocation processing system which executes a vehicle allocation processing of allocating vehicles to customers in accordance with requests from the customers,

comprising:

- the vehicle allocation processing apparatus according to any of claims 1, 3 and 7;
- a vehicle communication terminal mounted on each of the vehicles and capable of transmitting/receiving information;
- 5 a communication terminal which transmits vehicle allocation request information concerning a vehicle requested by a customer; and
- a communication section enabling transmission/reception of information among the vehicle allocation processing apparatus, the vehicle communication terminal of each of the vehicles, and the communication terminal.
- 10 22. A vehicle allocation processing method for executing a vehicle allocation processing of allocating vehicles to customers in accordance with requests from the customers, comprising steps of:
 - acquiring driving status information concerning driving states of the vehicles, from vehicle communication terminals mounted on the vehicles and capable of 15 transmitting/receiving information;
 - storing the acquired driving status information linked to vehicle information concerning the vehicles;
 - acquiring vehicle allocation request information concerning the vehicle requested by the customer and including customer delivery position information concerning a delivery 20 position to which the customer requests delivery, and customer destination information concerning a destination at which the customer aims;
 - searching for allocable vehicles, based on the acquired vehicle allocation request information and the stored vehicle information and driving status information; and
 - 25 transmitting, as information suggesting allocation, the acquired vehicle allocation request information to the vehicle communication terminals mounted on the allocable vehicles, based on the stored vehicle information corresponding to the allocable vehicles.
- 23. A vehicle allocation processing method for executing a vehicle allocation processing of allocating vehicles to customers in accordance with requests from the customers, comprising steps of:

acquiring driving status information concerning driving states of the vehicles, from vehicle communication terminals mounted on the vehicles and capable of transmitting/receiving information;

5 storing the acquired driving status information linked to vehicle information concerning the vehicles;

recognizing an input manipulation made by the customer, to acquire vehicle allocation request information concerning the vehicle requested by the customer and including customer delivery position information concerning a delivery position to which the customer requests delivery;

10 searching for allocable vehicles, based on the acquired vehicle allocation request information, and the stored vehicle information and driving status information; and

15 processing at least one of delivery time information concerning delivery time required for delivering each of the allocable vehicles and calculated on the basis of the stored driving status information corresponding to each of the allocable vehicles and the customer delivery position information included in the acquired vehicle allocation request information, and the stored vehicle information corresponding to each of the allocable vehicles, to make at least one of the delivery time information and the vehicle information reportable to the customer, to suggest the customer to select a particular vehicle, then recognizing the selection of the particular vehicle by recognizing an input manipulation made by the customer, and transmitting,
20 as information suggesting allocation, the acquired vehicle allocation request information, to the vehicle communication terminal mounted on the particular vehicle, based on the vehicle information corresponding to the particular vehicle.

24. A vehicle allocation processing method for executing a vehicle allocation processing of allocating vehicles to customers in accordance with requests from the customers, comprising steps of:

acquiring driving status information concerning driving states of the vehicles, from vehicle communication terminals mounted on the vehicles and capable of transmitting/receiving information;

storing the acquired driving status information linked to vehicle information

concerning the vehicles;

acquiring vehicle allocation request information concerning the vehicle requested by the customer and including customer delivery position information concerning a delivery position to which the customer requests delivery;

5 transmitting, as information suggesting allocation, the acquired vehicle allocation request information to the vehicle communication terminals mounted on allocable vehicles, based on the stored vehicle information;

calculating discount information concerning a discount rate to a charge for use of each of the allocable vehicles, based on at least one of the stored vehicle information and the driving 10 status information, and the acquired vehicle allocation request information; and

storing the calculated discount information linked to the vehicle allocation request information used for calculating the discount information and kept transmittable to the vehicle communication terminals mounted on the allocable vehicles or to a payment processor which executes a payment processing for settling charges for the vehicles.

15 25. A vehicle allocation processing program to make a computer execute a vehicle allocation processing method for executing a vehicle allocation processing of allocating vehicles to customers in accordance with requests from the customers, comprising steps of:

acquiring driving status information concerning driving states of the vehicles, from vehicle communication terminals mounted on the vehicles and capable of 20 transmitting/receiving information;

storing the acquired driving status information linked to vehicle information concerning the vehicles;

acquiring vehicle allocation request information concerning the vehicle requested by the customer and including customer delivery position information concerning a delivery 25 position to which the customer requests delivery, and customer destination information concerning a destination at which the customer aims;

searching for allocable vehicles, based on the acquired vehicle allocation request information and the stored vehicle information and driving status information; and

transmitting, as information suggesting allocation, the acquired vehicle allocation

request information to the vehicle communication terminals mounted on the allocable vehicles, based on the stored vehicle information corresponding to the allocable vehicles.

26. A vehicle allocation processing program to make a computer execute a vehicle allocation processing method for executing a vehicle allocation processing of allocating vehicles to customers in accordance with requests from the customers, comprising steps of:

acquiring driving status information concerning driving states of the vehicles, from vehicle communication terminals mounted on the vehicles and capable of transmitting/receiving information;

10 storing the acquired driving status information linked to vehicle information concerning the vehicles;

recognizing an input manipulation made by the customer, to acquire vehicle allocation request information concerning the vehicle requested by the customer and including customer delivery position information concerning a delivery position to which the customer requests delivery;

15 searching for allocable vehicles, based on the acquired vehicle allocation request information, and the stored vehicle information and driving status information; and

20 processing at least one of delivery time information concerning delivery time required for delivering each of the allocable vehicles and calculated on the basis of the stored driving status information corresponding to each of the allocable vehicles and the customer delivery position information included in the acquired vehicle allocation request information, and the stored vehicle information corresponding to each of the allocable vehicles, to make at least one of the delivery time information and the vehicle information reportable to the customer, to suggest the customer to select a particular vehicle, then recognizing the selection of the particular vehicle by recognizing an input manipulation made by the customer, and transmitting, 25 as information suggesting allocation, the acquired vehicle allocation request information, to the vehicle communication terminal mounted on the particular vehicle, based on the vehicle information corresponding to the particular vehicle.

27. A vehicle allocation processing program to make a computer execute a vehicle allocation processing method for executing a vehicle allocation processing of allocating

vehicles to customers in accordance with requests from the customers, comprising steps of:

acquiring driving status information concerning driving states of the vehicles, from vehicle communication terminals mounted on the vehicles and capable of transmitting/receiving information;

5 storing the acquired driving status information linked to vehicle information concerning the vehicles;

 acquiring vehicle allocation request information concerning the vehicle requested by the customer and including customer delivery position information concerning a delivery position to which the customer requests delivery;

10 transmitting, as information suggesting allocation, the acquired vehicle allocation request information to the vehicle communication terminals mounted on allocable vehicles, based on the stored vehicle information;

 calculating discount information concerning a discount rate to a charge for use of each of the allocable vehicles, based on at least one of the stored vehicle information and the driving status information, and the acquired vehicle allocation request information; and

15 storing the calculated discount information linked to the vehicle allocation request information used for calculating the discount information and kept transmittable to the vehicle communication terminals mounted on the allocable vehicles or to a payment processor which executes a payment processing for settling charges for the vehicles.

20 28. A recording medium which records the vehicle allocation processing program according to any of claims 25 to 27, to be readable from the computer.